

## REMARKS

### I. Introduction

In response to the Office Action dated April 6, 2005, Applicants have canceled non-elected claims 4-7, without prejudice or disclaimer. Claim 1 has been amended so as to further clarify the claimed subject matter. New claims 8-9 are added. Support for these amendments can be found, for example, in Figs. 4(a)-6(c) and at page 20, line 17 to page 21, line 3 and at page 21, line 14 to page 22, line 6 of the specification. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

### II. The Rejection Of Claims 1-3 Under 35 U.S.C. § 103

Claims 1-3 stand rejected under 35 U.S.C. § 103 as being unpatentable over Applicants' Admitted Prior Art ("AAPA") in view of USP No. 6,512,263 to Yuan. Applicants respectfully request reconsideration of this rejection for at least the following reasons.

Claim 1 recites in-part a third insulating film interposed between the floating gate and the semiconductor substrate, wherein the second insulating film includes a material different from that of the third insulating film.

In contrast, as readily demonstrated in Figs. 14(a)-15(c) of the AAPA, the second silicon dioxide film 209 provided between the control gate electrode 204 and the sidewall-shaped polysilicon film 210B serving as the floating gate electrode 210C, and that provided between the substrate 201 and the sidewall-shaped polysilicon film 210B or floating gate electrode 210C are simultaneously formed, in which the second silicon dioxide film 209 functions as both a capacitance insulating film and a tunnel insulating film, respectively (see, page 5, lines 17-19 of

the specification). In other words, the second silicon dioxide film 209 is merely a single layer silicon dioxide film. Yuan does not cure this defect of the AAPA, because Yuan has not been relied upon to disclose a second insulating film, let alone suggest a third insulating film having a material different from such a second insulating film.

In contrast, the second insulating film of the present invention provided between the control gate electrode and the floating gate electrode comprises a material different from that of at least a part of the third insulating film provided between the semiconductor substrate and the floating gate electrode. Accordingly, as a result of the foregoing structure, the capacitive coupling ratio can advantageously be increased.

Based upon the foregoing it should be apparent that even if the applied references are combined, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Applicants, therefore, submit that the rejection of claim 1 under 35 U.S.C. §103 for obviousness be withdrawn.

**III. All Dependent Claims Are Allowable Because The Independent Claims From Which They Depend Are Allowable**

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as independent claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also in condition for allowance.

Furthermore, with respect to claim 8, in accordance with one exemplary embodiment of the present invention, the step region is formed by dry-etching the semiconductor substrate using, as a mask, the second insulating film provided from the sides of the control gate electrode onto the semiconductor substrate and the sidewall insulating film comprising a BPSG film formed on the second insulating film. Accordingly, the second insulating film is provided in the upper part of the step region between the floating gate electrode and the semiconductor substrate. With respect to claim 9, the second insulating provided between the control gate electrode and the sidewall-shaped polysilicon film contains a stacked structure comprising a silicon dioxide film and a silicon nitride film. As it is believed that the AAPA and Yuan, taken alone or in combination, do not disclose or suggest the foregoing claim features, it is respectfully submitted that new claims 8-9 are patentable over the cited prior art.

#### **IV. Conclusion**

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

**Application No.: 10/648,515**

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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